LAND USE NOISE COMPATIBILITY STUDY FOR THE PROPOSED INDUSTRIAL DEVELOPMENT AT 2509 CEDAR CREEK ROAD, TOWNSHIP OF NORTH DUMFRIES, ONTARIO

Final Report

January 31, 2024

Prepared for:
Cedar Creek Road Holdings Inc.
130 Delta Park Boulevard
Brampton, ON L6T 5E7

Prepared by:
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400-2100 Derry Road West
Mississauga, ON L5N 0B3

Project Number:
161414214

Limitations and Sign-off

The conclusions in the Report titled Land Use Noise Compatibility Study for the Proposed Industrial Development at 2509 Cedar Creek Road, Township of North Dumfries, Ontario are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

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Prepared by: Digitally signed by Cho, Jihyun Date: 2024.01.31 09:45:48 -05'00'

Signature

Jihyun Cho (Ken), Ph.D., P.Eng.
Senior Acoustic, Noise and Vibration Engineer

Printed Name and Title

Reviewed by: Digitally signed by Salim, Mohammed Date: 2024.01.31 10:03:44 -05'00'

Signature

Mohammed Salim, P.Eng.
Senior Acoustics, Noise and Vibration Engineer

Printed Name and Title

Approved by: Brousseau, Kevin Digitally signed by Brousseau, Kevin DN: CN="Brousseau, Kevin", OU=Internal, OU=users, OU=stantec, DC=corp, DC=ads Location: Waterloo Reason: I am approving this document Contact Info: Kevin Brousseau Date: 2024.02.01 12:19:52-05'00'

Signature

Kevin Brousseau
Project Manager

Printed Name and Title

Acknowledgements

This Report was prepared by the team members identified below.

Role	Name	Affiliation
Project Manager and Independent Reviewer	Kevin Brousseau	Stantec
Senior Acoustical Engineer and Author	Jihyun Cho (Ken), Ph.D., P.Eng.	Stantec
Senior Acoustical Engineer and Quality Reviewer	Mohammed Salim, P.Eng.	Stantec

Professional Accreditation

Ken Cho — Professional Engineers Ontario

Executive Summary

Stantec was retained by Cedar Creek Road Holdings to prepare a Land Use Noise Compatibility Study in support of the Official Plan Amendment/Zoning By-law Application for the industrial development proposed at 2509 Cedar Creek Road, Township of North Dumfries, Ontario.

The purpose of this noise compatibility study is to determine if the planned industrial development meets the minimum setback distance set by the Ministry of the Environment, Conservations and Parks (MECP, (formerly MOE) Guideline D-6 (D-6 1995) and to find out a detailed noise study is required during the site plan approval stage. This compatibility study also reviewed noise impacts from the neighbouring road and rail operations on the potential noise-sensitive space such as offices within the proposed development in accordance with MECP NPC-300, Part C, guidelines for land use planning (MECP 2013).

The MECP Guideline D-6 is used to assess compatibility between industrial facilities and sensitive land uses. The Guideline D-6 states that in the absence of site-specific studies, this guideline should be utilized when sensitive land use encroaches on an existing industrial land uses or the industrial land use encroaches the existing sensitive land uses. The guideline provides the separation distance for the influence area and recommended minimum separation distance based on the type of industry.

The industrial facilities are categorized into three Classes according to the objectionable nature of their emissions, physical size/scale, production volumes and/or the intensity and schedule of operations. The potential influence area setbacks and the minimum separation distances set out in the guideline are based on these classes.

The site is composed of seven (7) parcels of land and one storm water management block is located within the Highway 401/97 Employment Area, zoned as industrial use with open spaces. The proposed site is bounded by industrial zoned lands to the west, Regional Road 97 (Cedar Creek Road) to the north, agriculturally zoned lands to the south and east. The closest noise sensitive land use (residence) is located approximately 235 m east of the proposed site.

The proposed development meets the Class I (light industry) minimum recommended separation distance of 20 m and the potential influence area of 70 m from the closest existing residential land uses. However, it is within the area of influence for Class II and recommended minimum separation distance of 300 m from the closest existing residential land use for Class III (heavy industry). A noise study will be required for the development during site plan approval stage if it is used as Class II and/or Class III area. The industries in the proposed site is expected to have MECP approval through the Environmental Compliance Approval (ECA) (Air & Noise) or the Environmental Activity and Sector Registry (EASR), which ensures operational noise limits are met at the surrounding noise sensitive receptors.

Additionally, Regional Road 97 (Cedar Creek Road) and Canadian Pacific Rail (CPR) were identified as potential transportation noise sources, impacting noise-sensitive spaces like offices in the proposed development. Highway 401 was also identified but not considered in this study since it is beyond 500 m from the proposed development.

The MECP NPC-300 guideline was followed for assessing transportation noise impacts on the development. CPR track is the only potential source of vibration identified in the vicinity of the site and is outside the area of influence for vibration. Therefore, a vibration assessment is not conducted for the sensitive spaces at the proposed development.

The road and rail traffic noise levels at five representative points of reception (PORs) for were predicted as per the MECP guidelines using STAMSON v5.04 noise modelling software which implements the Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT) (MECP, 1989). ORNAMENT is the MECP approved road and rail traffic noise prediction method.

The results of the study indicate that the predicted transportation noise levels at the proposed development are expected to meet the MECP requirements for general office spaces within the development and no additional noise mitigation is required.

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Acronyms / Abbreviations

AADT	Annual Average Daily Traffic
CPR	Canadian Pacific Rail
EASR	Environmental Activity and Sector Registry
ECA	Environmental Compliance Approval
FCM/RAC	Federation of Canadian Municipalities/Railway Association of Canada
MECP	Ontario Ministry of the Environment, Conservation and Parks (formerly Ministry of the Environment (MOE))
NEF	Noise Exposure Forecast
NPC	Noise Pollution Control
NWC	Noise Warning Clause
OLA	Outdoor Living Area
ORNAMENT	Ontario Road Noise Analysis Method for Environment and Transportation
POR	Point of Reception

1 Introduction

Stantec Consulting Ltd. was retained by Cedar Creek Road Holdings Inc. to prepare a Land Use Noise Compatibility Study in support of the Official Plan Amendment/Zoning By-law Applications for a condo industrial development to be located at 2509 Cedar Creek Road, Township of North Dumfries, Ontario.

The purpose of this noise compatibility study is to determine if the planned industrial development meets the minimum setback distance set by the Ministry of the Environment, Conservations and Parks (MECP, (formerly MOE) Guideline D-6 (D-6 1995) and to find out a detailed noise study is required during the site plan approval stage. This compatibility study also reviewed noise impacts from the neighbouring road and rail operations on the potential noise-sensitive space such as offices within the proposed development in accordance with MECP NPC-300, Part C, guidelines for land use planning (MECP 2013).

This assessment was based on the Conceptual Draft Plan of Vacant Land Condominium dated January 2024, prepared by Stantec.

Regional Road 97 (Cedar Creek Road) and Canadian Pacific Rail (CPR) were identified as potential transportation noise sources, impacting noise-sensitive spaces like general offices in the proposed development. Highway 401 was also identified but not considered in this study since it is beyond 500 m from the proposed development.

CPR track is the only potential source of vibration identified in the vicinity of the site and is outside the area of influence for vibration. Therefore, a vibration assessment is not conducted for the sensitive spaces at the proposed development.

The project location is shown in Figure 1 (Appendix A).

2 Site Location and Plan

The proposed site is located within the Highway401/97 Employment Area zoned as industrial use with open spaces, municipally known as 2509 Cedar Creek Road in the Township of North Dumfries, Ontario. The proposed site is bounded by industrial zoned lands to the west, Regional Road 97 (Cedar Creek Road) to the north, agriculturally zoned lands to the south and the east. A copy of the proposed site layout is attached as Appendix B.

The site is composed of seven (7) industrial lots and one (1) storm management block, and most of the land is currently zoned as industrial purposes permitting general industrial uses as defined the Township of North Dumfries By-Law 689-83 regulating zoning.

The closest residence is approximately 235 m to the east of the site.

A zoning map sourced for the Township of North Dumfries is attached as Appendix C for reference.

3 Land Use Compatibility

3.1 Guideline

The MECP Guideline D-6 is applicable to the proposed development and is used to assess land use compatibility for the Project.

3.1.1 Separation Distance Requirements

The MECP Guideline D-6 is used to assess compatibility between industrial facilities and sensitive land uses. The Guideline D-6 states that in the absence of site-specific studies, this guideline should be utilized when sensitive land use encroaches on an existing industrial land uses or the industrial land use encroaches the existing sensitive land use. In these situations, the appropriate criteria are the potential influence area and recommended minimum separation distance as set out in the guideline.

The industrial facilities are categorized into three Classes according to the objectionable nature of their emissions, their physical size/scale, production volumes and/or the intensity and scheduling of operations. Classification and details of the industrial categorization are attached as Appendix D.

The potential influence area and recommended minimum separation distance as set out in the guideline, are summarized in Table 3.1.

Table 3.1 Separation Distance

Category	Potential Influence Area [a]	Minimum Separation Distance [b]
Class I	70 m	20 m
Class II	300 m	70 m
Class III	1000 m	300 m

Notes:
[a] adverse effects may be experienced within potential influence area
[b] no incompatible development should occur within minimum separation distance

If the minimum separation distance cannot be maintained, a detailed noise study is required to confirm that the nearby noise-sensitive land uses are not impacted by the high noise levels from the proposed industrial land use.

3.1.2 Compatibility

The closest noise sensitive land use (residence) is located approximately 235 m east from the proposed site. Class I development in the proposed site would be in compliance with the MECP D-6 guideline, but a noise study will be required if Class II and Class III development are proposed for the site to demonstrate their compliance. Noise sensitive land uses surrounding the proposed site are shown in Figure 2 (Appendix A).

At the time of this noise compatibility study, details for the anticipated industrial use in the proposed project are not available. The industries in the proposed site is expected to have MECP approval through the Environmental Compliance Approval (ECA) (Air & Noise) or the Environmental Activity and Sector Registry (EASR), which ensures operational noise impacts are met to any adjacent noise sensitive receptors.

4 Transportation Noise Impact

4.1 Guideline and Criteria

The MECP NPC-300 (MECP 2013) is considered to assess noise impact on the noise-sensitive area like general offices within the development. Only transportation noise impact is assessed for the offices. The indoor transportation noise criteria as set in the MECP guideline are used as the criteria in this assessment and are summarized in Table 4.1.

Table 4.1 MECP Noise Criteria Limits

Type of Space	Time Period	Noise Criteria Leq (dBA)	
		Road Traffic	Rail Traffic
General office, reception areas, retail stores, etc. [a]	Daytime - (07:00 - 23:00)	50	45
	Nighttime - (23:00 - 07:00)	n/a	n/a

Note:
[a] Daytime operation only

4.2 Point of Reception

Noise impacts from transportation noise are evaluated at physical locations defined as points-of-reception (POR) for representative lots. In the absence of any development plan and drawings, five representative potential PORs are considered in this assessment based on the site orientation and they are summarized in Table 4.2. Based on the understanding of the Project, Stantec has considered 2-storey industrial building with noise sensitive spaces for this development.

The approximate locations for the receptors are considered at the mid height of second storey as representative of the office space for this assessment and are summarized in Table 4.2 and shown in Figure 3 (Appendix A).

Table 4.2 Points of Reception Summary

Façade	POR ID	POR Height (m)	Reference Road Setback Distance [a] (m)	Reference Road/Rail
North (West End)	POR01	4.5	140	Regional Road 97
North (East End)	POR02	4.5	130	Regional Road 97
East	POR03	4.5	220	Regional Road 97
East	POR04	4.5	350	CPR
East	POR05	4.5	235	CPR

Note:
[a] Refer to the setback distance from the centreline of the reference road/rail line in the adjacent column.

4.3 Assessment Methodology

4.3.1 Road Traffic

The road traffic noise levels at the PORs were predicted according to the MECP guideline using STAMSON v5.04 noise modelling software which implements the Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT) (MECP, 1989), an MECP approved road/rail traffic noise prediction method.

STAMSON modelling was configured to account for the separation distance from Regional Road 97 and CPR, and set to calculate noise levels over an acoustically reflective intermediate surface (pavements, hard packed gravel, earth, etc.) between the roadway and the PORs.

The Region of Waterloo provided 2022 Annual Average Daily Traffic (AADT) counts for Regional Road 97 and forecasted traffic volumes to 2032 which were used as inputs for the traffic modelling. Traffic speed limit, traffic composition (% of automobiles, % of medium trucks, % of heavy trucks), and the daytime/ nighttime traffic volume split, as provided by the Region are used for this assessment. A summary of the road traffic data used in the noise model is provided in Table 4.3. Traffic data as provided by the Region of Waterloo is attached in Appendix E.

Table 4.3 Forecasted 2032 Road Traffic Summary

Road	Speed Limit (km/h)	Traffic Volume					
		Daytime (07:00 to 23:00)			Nighttime (23:00 to 07:00)		
		Autos	Medium Trucks	Heavy Trucks	Autos	Medium Trucks	Heavy Trucks
Regional Road 97 (Cedar Creek Road)	80	10,238	389	2,333	1,138	43	259

4.3.2 Railway Traffic

The railway traffic noise levels at the PORs were predicted according to the MECP guideline using STAMSON v5.04 noise modelling software.

Railway traffic information on CPR were not available since CPR's policy update. The railway traffic volume was monitored for one week from May 9 to May 16, 2022, with motion detection camera near Alps Road crossing, approximately 900 m south of the project site. Averaged weekday rail traffic volume was used to estimate 10-year forecasted rail traffic, with a 2.5% of annual increase in accordance with the FCM/RAC Proximity Guide (2013). In addition, the track is classified as main line based on the traffic volume (exceeding 5 trains per day), and the maximum train speed would be 80 km/h in accordance with FCM/RAC Proximity Guide (2013).

The following assumptions were made for this assessment:

- Type of Engine: Diesel

- Number of Locomotives per Train: 3
- Number of Cars per Train: 100
- Type of Rail: Continuous Welding

A summary of the rail traffic volume used in the noise model is provided in Table 4.4. A summary of monitored railway traffic volume and the CPR correspondence are attached in Appendix F.

Table 4.4 Forecasted 2032 Rail Traffic Summary

Railway	Max Speed (km/h)	Traffic Volume	
		Daytime (07:00 to 23:00)	Nighttime (23:00 to 07:00)
CPR	80	10	4

4.4 Noise Impact Assessment Results

4.4.1 Road and Rail Traffic Noise

Equivalent sound levels (L_{eq}) due to traffic were predicted at the worst impacted façades (most exposed and closest to road and rail). The predicted road and rail traffic noise levels at the PORs are summarized in Table 4.5 and Table 4.6, respectively. STAMSON calculation sheets are attached as Appendix G.

Table 4.5 Predicted Road Traffic Noise Levels

Section ID	Height (m)	Façade Leq (dBA)	Projected Indoor Noise Level [a] Leq (dBA)	Road Traffic Noise Limit [b] Leq (dBA)	Within Noise Limits?
		Day	Day	Day	
POR01	4.5	59	49	50	Yes
POR02	4.5	60	50	50	Yes
POR03	4.5	53	43	50	Yes
POR04	4.5	48	38	50	Yes
POR05 [c]	4.5	n/a	n/a	50	n/a

Notes:

[a] Indoor noise levels are 10 dB less than the energy equivalent noise levels calculated at the exterior element of the building (façade, wall and door).

[b] Applicable Indoor Road Traffic Noise limit from Table 4.1.

[c] POR05 is beyond 500 m setback from Cedar Creek Road and sound levels are expected to be blow the levels predicted at POR04.

Table 4.6 Predicted Railway Traffic Noise Levels

Section ID	Height (m)	Façade L_{eq} (dBA) Day	Projected Indoor Noise Level [a] L_{eq} (dBA) Day	Rail Traffic Noise Limit [b] L_{eq} (dBA) Day	Within Noise Limits?
POR01 [c]	4.5	n/a	n/a	45	n/a
POR02 [c]	4.5	n/a	n/a	45	n/a
POR03	4.5	48	38	45	Yes
POR04	4.5	50	40	45	Yes
POR05	4.5	53	43	45	Yes

Notes:

[a] Indoor noise levels are 10 dB less than the energy equivalent noise levels calculated at the exterior element of the building (façade, wall and door).

[b] Applicable Indoor Road Traffic Noise limit from Table 4.1.

[c] POR01 and POR02 are beyond 500 m setback from CPR and sound levels are expected to be blow the levels predicted at POR03.

5 Conclusion

Stantec was retained by Cedar Creek Road Holdings to prepare a Land Use Noise Compatibility Study in support of the Official Plan Amendment/Zoning By-law Applications for an industrial development located at 2509 Cedar Creek Road, Township of North Dumfries, Ontario.

The compatibility study was completed to determine if the planned industrial development meets the minimum setback distance provided in the MECP Guideline D-6. This study also reviewed noise impact from the neighbouring road and rail operations on the potential noise-sensitive space such as offices within the proposed development in accordance with the MECP NPC-300, Part C, guidelines for land use planning.

The proposed development meets the Class I (light industry) minimum recommended separation distance of 20 m and the potential influence area of 70 m from the closest existing residential land uses. However, it is within the area of influence for Class II and recommended minimum separation distance of 300 m from the closest existing residential land use for Class III (heavy industry). A noise study will be required for the development during site plan approval stage if the development is used as Class II and Class III area. Industries in the proposed site are expected to have MECP approval that ensures operational noise limits are met at the surrounding noise sensitive land uses.

Regional Road 97 (Cedar Creek Road) and CPR were identified as a potential transportation noise sources, impacting noise-sensitive spaces like offices in the proposed development. The results of the transportation noise modelling indicate that the predicted transportation noise levels at the proposed development are expected to meet the MECP limits for general offices and no additional noise mitigation is required.

6 References

Ontario Ministry of the Environment, Conservation and Parks (MECP). 1989. ORNAMENT, Ontario Road Noise Analysis Method for Environment and Transportation, Technical Document. October 1989.

Ontario Ministry of the Environment, Conservation and Parks (MECP). 2013. Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning (NPC-300). August 2013.

Ontario Ministry of the Environment, Conservation and Parks (MECP). 1995. Guideline D-6, Compatibility Between Industrial Facilities and Sensitive Land Uses.

Guidelines for New Development in Proximity to Railway Operations, The Federation of Canadian Municipalities and The Railway Association of Canada. May 2013.

APPENDICES

Appendix A Figures

Stantec

Legend

- Site Plan
- Study Area
- Waterbody

0 40 80 metres

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Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
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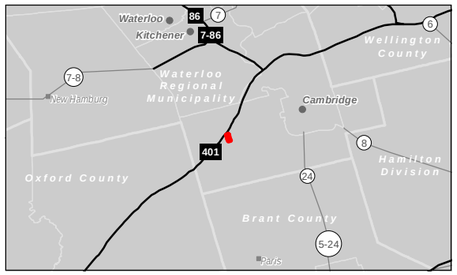

Project Location
Township of North Dumfries

161414214 REVA
Prepared by JSa on 2022-10-28

Client/Project
CEDAR CREEK ROAD HOLDINGS INC.
NOISE IMPACT STUDY - PROPOSED 2509 CEDAR CREEK DEVELOPMENT

Figure No.
1

Title
Aerial View of Project Site

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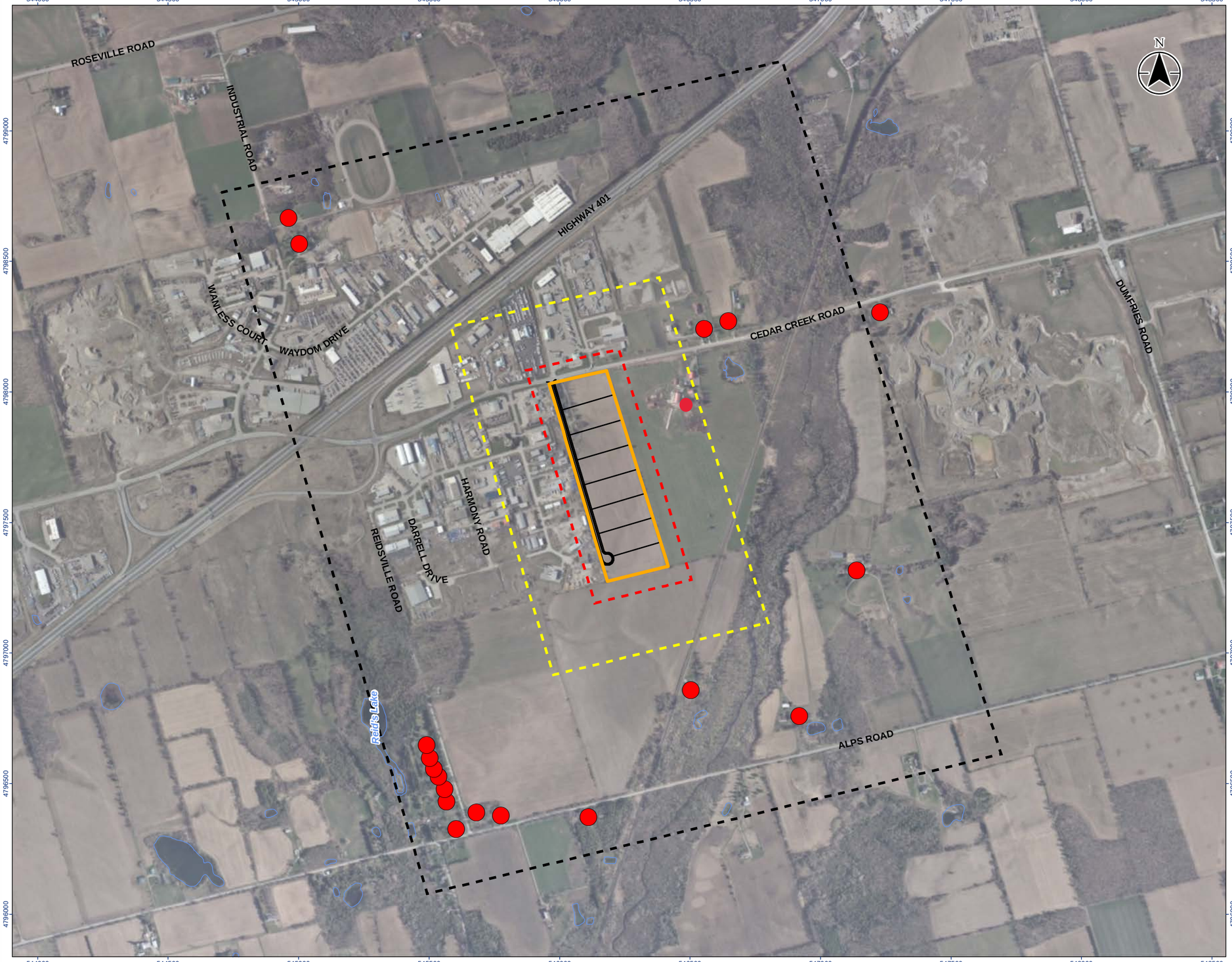

Stantec

Legend

- Residence
- Site Plan
- Study Area

Potential Influence

- Class I Potential Influence Area
- Class II Potential Influence Area
- Class III Potential Influence Area
- Waterbody

0 200 400 metres

1:15,000 (At original document size of 11x17)

Notes

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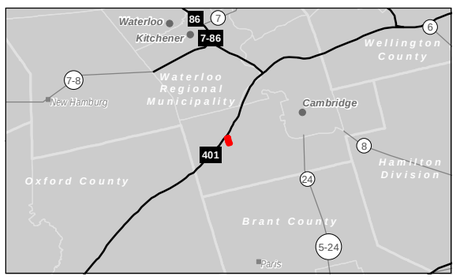

Project Location
Township of North Dumfries

161414214 REVA
Prepared by JSa on 2022-10-28

Client/Project
CEDAR CREEK ROAD HOLDINGS INC.
NOISE IMPACT STUDY - PROPOSED 2509 CEDAR CREEK DEVELOPMENT

Figure No.
2

Title
Separation Distance From the Proposed Project Site

Stantec

Legend

- Site Plan
- Study Area
- Waterbody
- Point of Reception Location

0 40 80 metres

1:4,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
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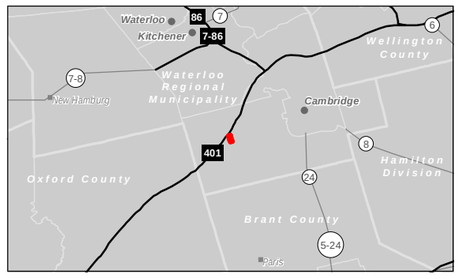

Project Location
Township of North Dumfries

161414214 REVA
Prepared by JSa on 2022-10-28

Client/Project
CEDAR CREEK ROAD HOLDINGS INC.
NOISE IMPACT STUDY - PROPOSED 2509 CEDAR CREEK DEVELOPMENT

Figure No.
3

Title
Point of Reception Location

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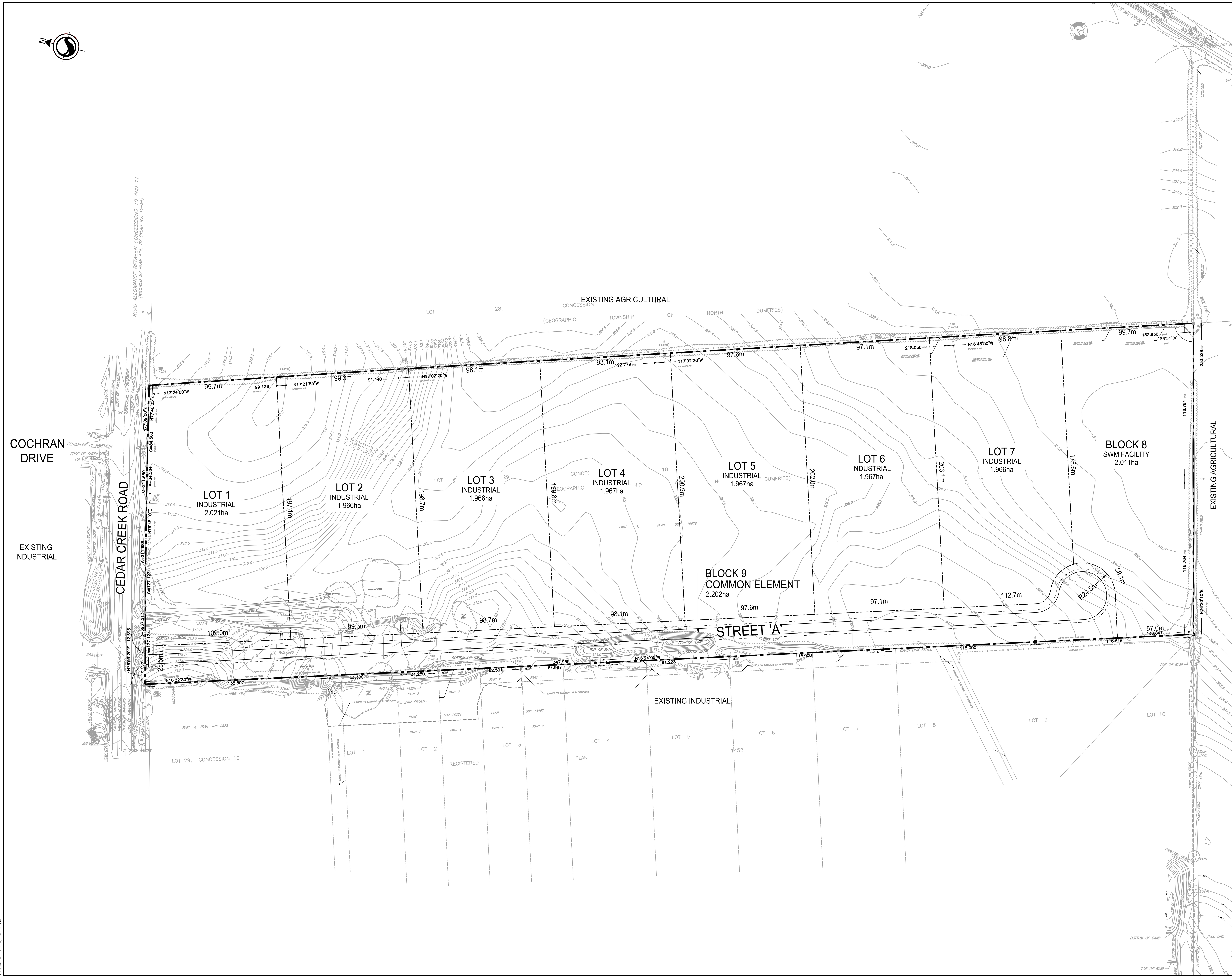
Appendix B Proposed Draft Plan



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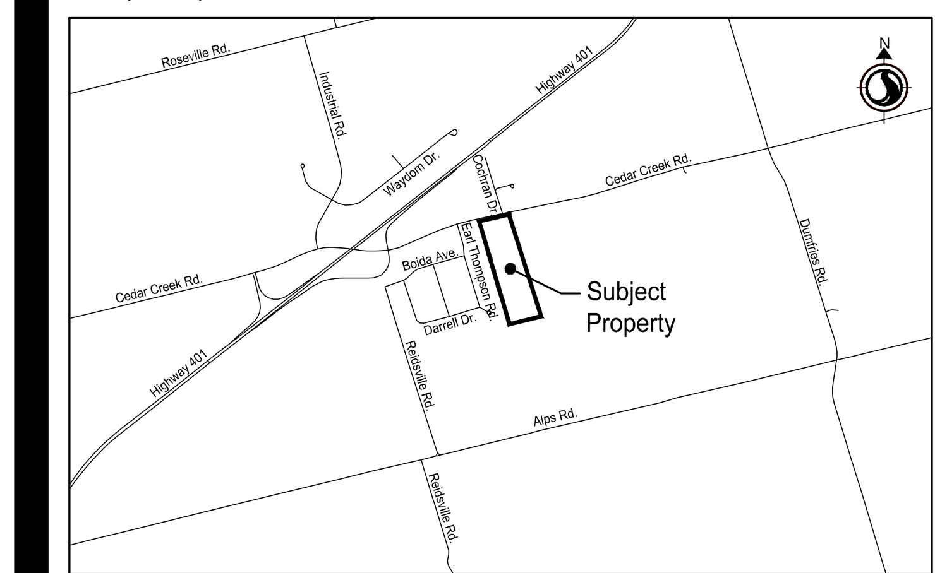
Key Map NTS.



Legal Description

Part of Lot 29,
Concession 10,
Township of North Dumfries,
Regional Municipality of Waterloo

Information Required

Under Section 51(17) of the Planning Act,
R.S.O 1990 c.P 13 as Amended
a) - As Shown
b) - As Shown
c) - As Shown
d) - As Listed Below
e) - As Shown
f) - As Shown
g) - As Shown
h) - Municipal Water
i) - As Shown
j) - Municipal Sanitary and Storm Sewers
k) - None

Surveyor's Certificate

I hereby certify the boundaries of the subject lands and their relationship to the adjoining lands have been accurately and correctly shown.

Signed ______________________
O.L.S Name
Stantec Consulting Ltd.
Date ________

Owner's Certificate

I hereby authorize Stantec Consulting Ltd. to submit this Draft Plan of Subdivision on my behalf.

Signed ______________________
Owner Name
Company Name
Date ________

Land Use Schedule

Lots/Blocks	Land Use	Area (ha)
Lot 1	Industrial	2.021
Lot 2	Industrial	1.966
Lot 3	Industrial	1.966
Lot 4	Industrial	1.967
Lot 5	Industrial	1.967
Lot 6	Industrial	1.967
Lot 7	Industrial	1.966
Block 8	Stormwater Management Facility	2.011
Block 9	Street A	2.202
TOTAL		18.033ha

Revision		By	Appd	YYYY.MM.DD
1st	Submission for Draft Plan	TR	MD	2024.01.12

File Name: 161414214_R-DP_CONDO	JJ	JJ	MD	2022.08.16
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Permit-Seal

APPROVED: ______________ DATE: ______________

I hereby certify that the plan was prepared under the supervision of a registered professional planner, within the meaning of the Ontario Professional Planners Institute Act, 1994.

Client/Project

CEDAR CREEK ROAD HOLDINGS INC.

2509 CEDAR CREEK ROAD, AYR

TOWNSHIP OF NORTH DUMFRIES, ON

Title

CONCEPTUAL DRAFT PLAN OF VACANT LAND CONDOMINIUM

Project No. 161414214

Scale 1:1250 (0, 12.5, 37.5, 62.5m)

Revision 0

Sheet 1 of 1

Drawing No. **DP-1**

Appendix C Zoning Map

Ayr Zoning Map

Legend

The TOWNSHIP of NORTH DUMFRIES

text By-Law Exemption No.

Zoning Category

Zoning Code Text Symbol

Zone Code

- Zone 1 - Agriculture
- Zone 2 - Rural Residential
- Zone 2a - Rural Residential
- Zone 2af - Rural Residential (flood plain)
- Zone 3 - Rural Residential
- Zone 3f - Rural Residential (flood plain)
- Zone 4 - Urban Residential
- Zone 4f - Urban Residential (flood plain)
- Zone 4a - Urban Residential
- Zone 4b - Urban Residential
- Zone 4c - Urban Residential
- Zone 4d - Urban Residential
- Zone 5 - Urban Residentia
- Zone 5a - Urban Residential
- Zone 6 - Urban Commercial
- Zone 6f - Urban Commercial (flood plain)
- Zone 7 - Rural Commercial
- Zone 8 - Service Station
- Zone 9 - Industrial
- Zone 9f - Industrial (flood plain)
- Zone 10 - Industrial
- Zone 11 - Industrial
- Zone 12 - Open Space
- Zone 12a - Envronmental Protection 1
- Zone 12b - Envronmental Protection 2
- Zone 12c - Envronmental Protection Overlay
- Zone 13 - Institutional
- Zone 14 - Mineral Aggregates
- Zone 15 - Mobile Home Development
- Regional Municipal Boundaries

N

This map is provided for illustrative purposes only and may have errors. Reference should be made to Schedules A and B of General Zoning By-law 689-83. In the case of a descrepancy between this map, and the Zoning By-law and any amendments, the Zoning By-law and any amendements will be used. (July 2019)

Zoning Map North-West Township

Legend

text By-Law Exemptions No.

Zoning Category

Zoning Code Text Symbol

Zone Code

- Zone 1 - Agriculture
- Zone 2 - Rural Residential
- Zone 2a - Rural Residential
- Zone 2af - Rural Residential (flood plain)
- Zone 3 - Rural Residential
- Zone 3f - Rural Residential (flood plain)
- Zone 4 - Urban Residential
- Zone 4f - Urban Residential (flood plain)
- Zone 4a - Urban Residential
- Zone 4b - Urban Residential
- Zone 4c - Urban Residential
- Zone 4d - Urban Residential
- Zone 5 - Urban Residentia
- Zone 5a - Urban Residential
- Zone 6 - Urban Commercial
- Zone 6f - Urban Commercial (flood plain)
- Zone 7 - Rural Commercial
- Zone 8 - Service Station
- Zone 9 - Industrial
- Zone 9f - Industrial (flood plain)
- Zone 10 - Industrial
- Zone 11 - Industrial
- Zone 12 - Open Space
- Zone 12a - Envronmental Protection 1
- Zone 12b - Envronmental Protection 2
- Zone 12c - Envronmental Protection Overlay
- Zone 13 - Institutional
- Zone 14 - Mineral Aggregates
- Zone 15 - Mobile Home Development
- Regional Municipal Boundaries

N

This map is provided for illustrative purposes only and may have errors. Reference should be made to Schedules A and B of General Zoning By-law 689-83. In the case of a descrepancy between this map, and the Zoning By-law and any amendments, the Zoning By-law and any amendements will be used. (July 2019)

Zoning Map North-Central Township

Legend

The TOWNSHIP of NORTH DUMFRIES

text By-Law Exemption No.

Zoning Category

Zoning Code Text Symbol

Zone Code

- Zone 1 - Agriculture
- Zone 2 - Rural Residential
- Zone 2a - Rural Residential
- Zone 2af - Rural Residential (flood plain)
- Zone 3 - Rural Residential
- Zone 3f - Rural Residential (flood plain)
- Zone 4 - Urban Residential
- Zone 4f - Urban Residential (flood plain)
- Zone 4a - Urban Residential
- Zone 4b - Urban Residential
- Zone 4c - Urban Residential
- Zone 4d - Urban Residential
- Zone 5 - Urban Residentia
- Zone 5a - Urban Residential
- Zone 6 - Urban Commercial
- Zone 6f - Urban Commercial (flood plain)
- Zone 7 - Rural Commercial
- Zone 8 - Service Station
- Zone 9 - Industrial
- Zone 9f - Industrial (flood plain)
- Zone 10 - Industrial
- Zone 11 - Industrial
- Zone 12 - Open Space
- Zone 12a - Envronmental Protection 1
- Zone 12b - Envronmental Protection 2
- Zone 12c - Envronmental Protection Overlay
- Zone 13 - Institutional
- Zone 14 - Mineral Aggregates
- Zone 15 - Mobile Home Development
- Regional Municipal Boundaries

N

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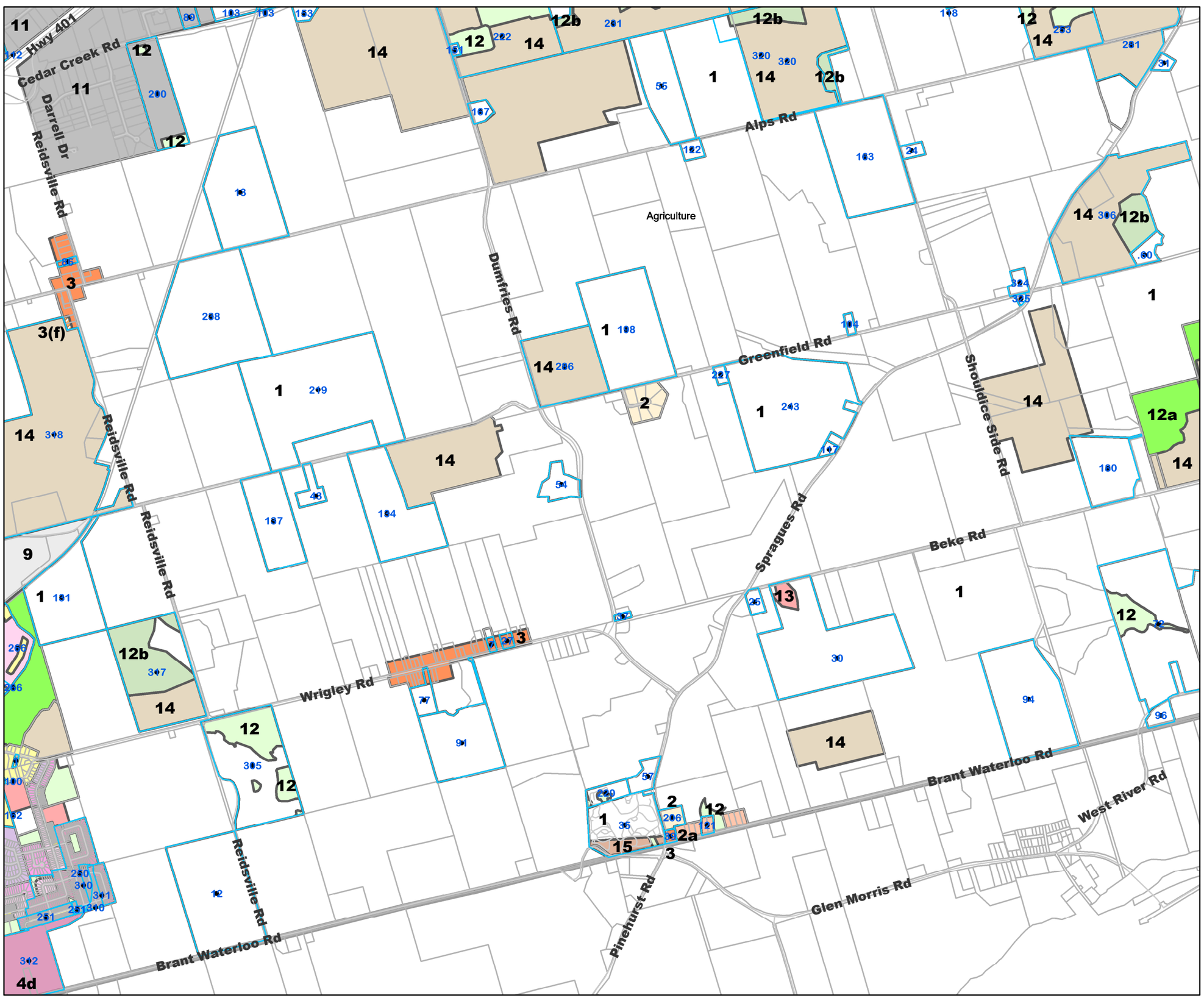
Zoning Map South-Central Township



Legend

The TOWNSHIP of NORTH DUMFRIES

text By-Law Exemption No.

Zoning Category

Zoning Code Text Symbol

Zone Code

- Zone 1 - Agriculture
- Zone 2 - Rural Residential
- Zone 2a - Rural Residential
- Zone 2af - Rural Residential (flood plain)
- Zone 3 - Rural Residential
- Zone 3f - Rural Residential (flood plain)
- Zone 4 - Urban Residential
- Zone 4f - Urban Residential (flood plain)
- Zone 4a - Urban Residential
- Zone 4b - Urban Residential
- Zone 4c - Urban Residential
- Zone 4d - Urban Residential
- Zone 5 - Urban Residentia
- Zone 5a - Urban Residential
- Zone 6 - Urban Commercial
- Zone 6f - Urban Commercial (flood plain)
- Zone 7 - Rural Commercial
- Zone 8 - Service Station
- Zone 9 - Industrial
- Zone 9f - Industrial (flood plain)
- Zone 10 - Industrial
- Zone 11 - Industrial
- Zone 12 - Open Space
- Zone 12a - Envronmental Protection 1
- Zone 12b - Envronmental Protection 2
- Zone 12c - Envronmental Protection Overlay
- Zone 13 - Institutional
- Zone 14 - Mineral Aggregates
- Zone 15 - Mobile Home Development
- Regional Municipal Boundaries

N

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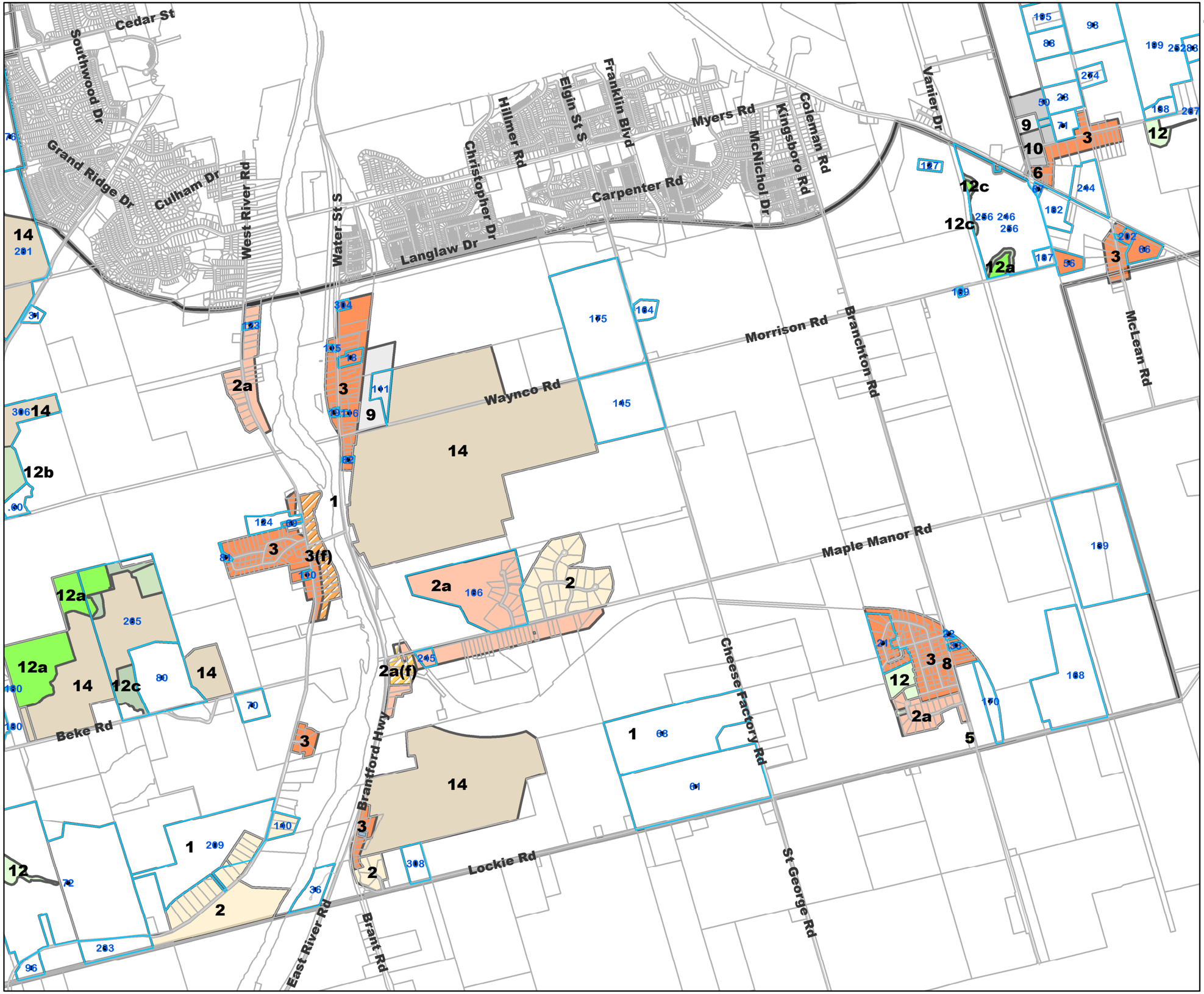
Zoning Map South Township (Grand River)



Legend

The TOWNSHIP of NORTH DUMFRIES

text By--Law Exemption No.

Zoning Category

Zoning Code Text Symbol

Zone Code

- Zone 1 - Agriculture
- Zone 2 - Rural Residential
- Zone 2a - Rural Residential
- Zone 2af - Rural Residential (flood plain)
- Zone 3 - Rural Residential
- Zone 3f - Rural Residential (flood plain)
- Zone 4 - Urban Residential
- Zone 4f - Urban Residential (flood plain)
- Zone 4a - Urban Residential
- Zone 4b - Urban Residential
- Zone 4c - Urban Residential
- Zone 4d - Urban Residential
- Zone 5 - Urban Residentia
- Zone 5a - Urban Residential
- Zone 6 - Urban Commercial
- Zone 6f - Urban Commercial (flood plain)
- Zone 7 - Rural Commercial
- Zone 8 - Service Station
- Zone 9 - Industrial
- Zone 9f - Industrial (flood plain)
- Zone 10 - Industrial
- Zone 11 - Industrial
- Zone 12 - Open Space
- Zone 12a - Envronmental Protection 1
- Zone 12b - Envronmental Protection 2
- Zone 12c - Envronmental Protection Overlay
- Zone 13 - Institutional
- Zone 14 - Mineral Aggregates
- Zone 15 - Mobile Home Development
- Regional Municipal Boundaries

N

This map is provided for illustrative purposes only and may have errors. Reference should be made to Schedules A and B of General Zoning By-law 689-83. In the case of a descrepancy between this map, and the Zoning By-law and any amendments, the Zoning By-law and any amendements will be used. (July 2019)

Zoning Map - Beverly

Legend

The TOWNSHIP of NORTH DUMFRIES

text By-Law Exemption No.

Zoning Category

Zoning Code Text Symbol

Zone Code

- Zone 1 - Agriculture
- Zone 2 - Rural Residential
- Zone 2a - Rural Residential
- Zone 2af - Rural Residential (flood plain)
- Zone 3 - Rural Residential
- Zone 3f - Rural Residential (flood plain)
- Zone 4 - Urban Residential
- Zone 4f - Urban Residential (flood plain)
- Zone 4a - Urban Residential
- Zone 4b - Urban Residential
- Zone 4c - Urban Residential
- Zone 4d - Urban Residential
- Zone 5 - Urban Residentia
- Zone 5a - Urban Residential
- Zone 6 - Urban Commercial
- Zone 6f - Urban Commercial (flood plain)
- Zone 7 - Rural Commercial
- Zone 8 - Service Station
- Zone 9 - Industrial
- Zone 9f - Industrial (flood plain)
- Zone 10 - Industrial
- Zone 11 - Industrial
- Zone 12 - Open Space
- Zone 12a - Envronmental Protection 1
- Zone 12b - Envronmental Protection 2
- Zone 12c - Envronmental Protection Overlay
- Zone 13 - Institutional
- Zone 14 - Mineral Aggregates
- Zone 15 - Mobile Home Development
- Regional Municipal Boundaries

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Saginaw Pky
Townline Rd
Gore Rd
Avenue Rd
Clyde Rd
County Rd 52
Tenth Concession Rd W
Village Rd
Old Beverly Rd
County Rd 97
Shellard Rd
City of Cambridge
Main St
Robinson Rd
Sheffield Rd
Morrison Rd
Studiman Rd
Seaton Rd
Vanier Dr
Elgin St S
Franklin Blvd
Myers Rd
McNichol Dr
Branchton Rd
Carpenter Rd

Appendix D D-6 Industrial Categorization

PROCEDURE D-6-1

APPENDIX A: INDUSTRIAL CATEGORIZATION CRITERIA

Last Revision

July 1995

APPENDIX A

INDUSTRIAL CATEGORIZATION CRITERIA*

CATE-GORY	OUTPUTS	SCALE	PROCESS	OPERATION /INTENSITY	POSSIBLE EXAMPLES**
Class I	NOISE: Sound not audible off property DUST and/or ODOUR: Infrequent and not intense VIBRATION: No ground borne vibration on plant property	- No outside storage - Small scale plant or scale is irrelevant in relation to all other criteria for this Class	- Self contained plant or building which produces/stores a packaged product. Low probability of fugitive emissions	- Daytime operations only - Infrequent movement of products and/or heavy trucks	- Electronics manuf. and repair - Furniture repair and refinishing - Beverages bottling - Auto parts supply - Packaging and crafting services - Distribution of dairy products - Laundry and linen supply
Class II	NOISE: Sound occasionally audible off property DUST and/or ODOUR: Frequent and occasionally intense VIBRATION: Possible ground-borne vibration, but cannot be perceived off property	- Outside storage permitted - Medium level of production allowed	- Open process - Periodic outputs of minor annoyance - Low probability of fugitive emissions	- Shift operations permitted - Frequent movement of products and/or heavy trucks with the majority of movements during daytime hours	- Magazine printing - Paint spray booths - Metal command - electrical production manufacturing - Manufacturing of dairy products - Dry cleaning services - Feed packing plant

Class III	NOISE: sound frequently audible off property DUST and/or ODOUR: Persistent and/or intense VIBRATION: Ground-borne vibration can frequently be perceived off property	- Outside storage of raw and finished products - Large production levels	- Open process - Frequent outputs of major annoyances - High probability of fugitive emissions	- Continuous movement of products and employees - Daily shift operations permitted	- Manufacturing of paint and varnish - Organic chemicals manuf. - Breweries - Solvent recovery plants - Soaps and detergent manuf. - Manufacturing of resins and costing - Metal manufacturing

NOTE: *Emissions may be point source or fugitive.*

*** NOTE:** *This Table should not be considered a comprehensive list but is to be used to provide examples of industrial categories.*

**** NOTE:** *The following examples are not limited to the Class indicated on the Table. The categorization of a particular industry will vary with the specifics of the case.*

SOURCE: *The criteria for categorizing industries into Class I, II or III are derived from Ministry experience and the investigation of complaints related to industrial facilities.*

Appendix E Road Traffic Data

Region of Waterloo AADT Forecast for Noise Studies

1. Development/Location	2509 Cedar Creek	
	Cedar Creek Rd	
2. Current AADT (2022)	11,300	
	Cedar Creek Rd	
3. Forecast AADT (2032)	14,400	
4. Commercial Vehicle Rates	Ottawa St S	
% Medium Trucks	3%	
% Heavy Trucks	18%	
	Cedar Creek Rd	
5. Posted Speed Limit	80 km/h	
6. Day/Night Splits	Regional Standard 90/10 Day/Night Split	
7. Expiry	Dec 31 2022	

8. Notes

This forecast is intended for the purpose of carrying out a noise study for 2509 Cedar Creek only.

Ministry of Transportation (MTO) should be contacted to provide the forecast for Highway 401. Please refer to this link to acquire MTO traffic data:
https://www.library.mto.gov.on.ca/SydneyPLUS/TechPubs/Portal/tp/tvSplash.aspx.

This forecast remains valid up to the date indicated above. The Region of Waterloo should be contacted for an updated forecast if there are plans to use this forecast beyond the above validity period.

Appendix F Rail Traffic Data

Train Count from May 9 to May 16, 2022 at the Crossing on Alps Road

Monitoring Date	Train Passby Time													
Monday, May 9, 2022	11:20	12:52	16:56	17:14	20:28	21:23	23:45							
Tuesday, May 10, 2022	2:13	3:26	6:10	7:54	11:09	14:24	15:47	18:20	19:43	19:58	21:36			
Wednesday, May 11, 2022	1:00	1:55	2:57	7:46	9:53	10:47	14:09	14:23	15:47	19:00	21:17			
Thursday, May 12, 2022	1:00	2:42	4:40	5:19	7:41	9:14	12:47	14:17	14:58	15:25	15:40	18:26	21:05	23:41
Friday, May 13, 2022	0:22	4:44	7:33	8:09	9:56	14:16	15:17	18:46	19:51	21:34				
Saturday, May 14, 2022	0:40	2:31	7:55	8:28	12:51	15:05	23:50							
Sunday, May 15, 2022	2:24	5:56	15:32	16:16	18:19									
Monday, May 16, 2022	3:20	3:55	6:05	7:35										

Sample Photo of Monitored Train

First Monitored Train

Last Monitored Train

Cho, Ken

To: CP Proximity-Ontario
Subject: RE: Development Ayr ON

From: CP Proximity-Ontario <CP_Proximity-Ontario@cpr.ca>
Sent: Friday, April 22, 2022 9:58 AM
To: Cho, Ken <Jihyun.Cho@stantec.com>
Subject: RE: Development Ayr ON

Good Morning,

Thank you for reaching out to CP Real Estate with regards to CP's Galt Subdivision, classified as principal mainline track. Please note that our CP Real Estate Team has changed its position regarding the sharing of its proprietary & confidential rail data and will no longer be providing rail data or yard specs to third parties. We appreciate that this is a change to what was previously provided by our group. Further, rail traffic data is merely a snapshot in time, and traffic volumes are subject to fluctuation as a function of market demand.

Information that I am able to share would be that current operations along any CP track include regular freight trains travelling through, 24 hours a day, 7 days a week. With these operations, engines are constantly running and the operations are continuous, loud and cause a lot of vibration. Rail traffic volume on any part of our North American network is a function of market demand. Traffic volumes fluctuate regularly as market demand for goods and commodities shifts or as export patterns change and does not have a set schedule. Any development near railway infrastructure should assume the potential for frequent train activity at any time of the day or night, on any day of the year. There is also the possibility of increasing operations in future, including adding or moving track or any other railway related use.

CP's approach to development in the vicinity of rail operations is encapsulated by the recommended 2013 Proximity Guidelines developed through collaboration between the Railway Association of Canada and the Federation of Canadian Municipalities. Those guidelines are found at the following website address: http://www.proximityissues.ca/

The safety and welfare of residents can be adversely affected by rail operations and CP is not in favour of residential uses that are not compatible with rail operations.

Should the captioned development proposal receive approval, CP respectfully requests that the recommended guidelines be followed.

Thank you,

CP Proximity Ontario

CP Proximity Ontario
CP_Proximity-Ontario@cpr.ca
7550 Ogden Dale Road SE, Building 1
Calgary AB T2C 4X9

From: sp2013Ext <sp2013Ext@cpr.ca>
Sent: Tuesday, April 19, 2022 8:55 AM
To: Webmaster <Webmaster@cpr.ca>
Subject: General Contact for information

Name: Jihyun Cho (Ken)
E-mail: jihyun.cho@stantec.com
Phone: 437-533-8848
Company: Stantec
Address/Location of your inquiry: 2100 Derry Road West
City/Town: Mississauga
Province/State: Ontario
Type of Comment: Inquiry
Comments: Hi, I am looking for train traffic volume near 2509 Cedar Creek Road, Ayr, Ontario for a railway noise and vibration study for future residential development. It will be great if I have the detailed traffic information (daily traffic volume, train type, number of engines, speed, number of cars, etc) or direct me to a person who is in charge. Regards, Ken
Contact Me: Yes

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Appendix G STAMSON Calculation

STAMSON 5.0 NORMAL REPORT Date: 14-06-2022 14:00:56
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: por01.te Time Period: Day/Night 16/8 hours
Description: POR01

Road data, segment # 1: Cedar Creek (day/night)

Car traffic volume : 10238/1138 veh/TimePeriod
Medium truck volume : 389/43 veh/TimePeriod
Heavy truck volume : 2333/259 veh/TimePeriod
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Cedar Creek (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 140.00 / 140.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Cedar Creek (day)

Source height = 2.06 m

ROAD (0.00 + 59.11 + 0.00) = 59.11 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.55	75.45	0.00	-15.07	-1.27	0.00	0.00	0.00	59.11

Segment Leq : 59.11 dBA

Total Leq All Segments: 59.11 dBA

Results segment # 1: Cedar Creek (night)

Source height = 2.06 m

ROAD (0.00 + 52.57 + 0.00) = 52.57 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.55	68.91	0.00	-15.07	-1.27	0.00	0.00	0.00	52.57

Segment Leq : 52.57 dBA

Total Leq All Segments: 52.57 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.11
(NIGHT): 52.57

STAMSON 5.0 NORMAL REPORT Date: 14-06-2022 14:01:55
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: por02.te Time Period: Day/Night 16/8 hours
Description: POR02

Road data, segment # 1: Cedar Creek (day/night)

Car traffic volume : 10238/1138 veh/TimePeriod
Medium truck volume : 389/43 veh/TimePeriod
Heavy truck volume : 2333/259 veh/TimePeriod
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Cedar Creek (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 130.00 / 130.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Cedar Creek (day)

Source height = 2.06 m

ROAD (0.00 + 59.61 + 0.00) = 59.61 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.55	75.45	0.00	-14.57	-1.27	0.00	0.00	0.00	59.61

Segment Leq : 59.61 dBA

Total Leq All Segments: 59.61 dBA

Results segment # 1: Cedar Creek (night)

Source height = 2.06 m

ROAD (0.00 + 53.07 + 0.00) = 53.07 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.55	68.91	0.00	-14.57	-1.27	0.00	0.00	0.00	53.07

Segment Leq : 53.07 dBA

Total Leq All Segments: 53.07 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.61
(NIGHT): 53.07

STAMSON 5.0 NORMAL REPORT Date: 14-06-2022 14:04:34
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: por03.te Time Period: Day/Night 16/8 hours
Description: POR03

Rail data, segment # 1: CPR (day/night)

Train ! Trains ! Speed !# loc !# Cars! Eng !Cont
Type ! !(km/h) !/Train!/Train! type !weld
---
1. ! 10.0/4.0 ! 80.0 ! 3.0 !100.0 !Diesel! Yes

Data for Segment # 1: CPR (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 500.00 / 500.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
No Whistle
Reference angle : 0.00

Results segment # 1: CPR (day)

LOCOMOTIVE (0.00 + 47.49 + 0.00) = 47.49 dBA
Angle1 Angle2 Alpha RefLeq D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 90 0.50 71.42 -22.77 -1.17 0.00 0.00 0.00 47.49

WHEEL (0.00 + 39.15 + 0.00) = 39.15 dBA
Angle1 Angle2 Alpha RefLeq D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 90 0.60 64.87 -24.37 -1.35 0.00 0.00 0.00 39.15

Segment Leq : 48.08 dBA

Total Leq All Segments: 48.08 dBA

Results segment # 1: CPR (night)

LOCOMOTIVE (0.00 + 46.52 + 0.00) = 46.52 dBA
Angle1 Angle2 Alpha RefLeq D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---

```
  -90    90   0.50  70.45 -22.77  -1.17   0.00   0.00   0.00  46.52
-------------------------------------------------------------------------

WHEEL (0.00 + 38.18 + 0.00) = 38.18 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
  -90    90   0.60  63.90 -24.37  -1.35   0.00   0.00   0.00  38.18
-------------------------------------------------------------------------

Segment Leq : 47.11 dBA

Total Leq All Segments: 47.11 dBA


Road data, segment # 1: Cedar Creek (day/night)
-----------------------------------------------
Car traffic volume  : 10238/1138  veh/TimePeriod
Medium truck volume :   389/43    veh/TimePeriod
Heavy truck volume  :  2333/259   veh/TimePeriod
Posted speed limit  :    80 km/h
Road gradient       :    0 %
Road pavement       :    1 (Typical asphalt or concrete)

Data for Segment # 1: Cedar Creek (day/night)
---------------------------------------------
Angle1   Angle2          :   0.00 deg   90.00 deg
Wood depth               :      0       (No woods.)
No of house rows         :      0 / 0
Surface                  :      1       (Absorptive ground surface)
Receiver source distance  : 220.00 / 220.00 m
Receiver height          :   4.50 / 4.50   m
Topography               :      1       (Flat/gentle slope; no barrier)
Reference angle          :   0.00


Results segment # 1: Cedar Creek (day)
--------------------------------------

Source height = 2.06 m

ROAD (0.00 + 53.05 + 0.00) = 53.05 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    0    90   0.55  75.45   0.00 -18.12  -4.28   0.00   0.00   0.00  53.05
-------------------------------------------------------------------------------

Segment Leq : 53.05 dBA

Total Leq All Segments: 53.05 dBA


Results segment # 1: Cedar Creek (night)
----------------------------------------
```

Source height = 2.06 m

ROAD (0.00 + 46.51 + 0.00) = 46.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.55	68.91	0.00	-18.12	-4.28	0.00	0.00	0.00	46.51

Segment Leq : 46.51 dBA

Total Leq All Segments: 46.51 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.25
(NIGHT): 49.83

STAMSON 5.0 NORMAL REPORT Date: 14-06-2022 14:05:45
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: por04.te Time Period: Day/Night 16/8 hours
Description: POR04

Rail data, segment # 1: CPR (day/night)

Train ! Trains ! Speed !# loc !# Cars! Eng !Cont
Type ! !(km/h) !/Train!/Train! type !weld
---
1. ! 10.0/4.0 ! 80.0 ! 3.0 !100.0 !Diesel! Yes

Data for Segment # 1: CPR (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 350.00 / 350.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
No Whistle
Reference angle : 0.00

Results segment # 1: CPR (day)

LOCOMOTIVE (0.00 + 49.81 + 0.00) = 49.81 dBA
Angle1 Angle2 Alpha RefLeq D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 90 0.50 71.42 -20.45 -1.17 0.00 0.00 0.00 49.81

WHEEL (0.00 + 41.63 + 0.00) = 41.63 dBA
Angle1 Angle2 Alpha RefLeq D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 90 0.60 64.87 -21.89 -1.35 0.00 0.00 0.00 41.63

Segment Leq : 50.42 dBA

Total Leq All Segments: 50.42 dBA

Results segment # 1: CPR (night)

LOCOMOTIVE (0.00 + 48.84 + 0.00) = 48.84 dBA
Angle1 Angle2 Alpha RefLeq D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---

```
  -90    90   0.50  70.45 -20.45  -1.17   0.00   0.00   0.00  48.84
-------------------------------------------------------------------------

WHEEL (0.00 + 40.66 + 0.00) = 40.66 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
  -90    90   0.60  63.90 -21.89  -1.35   0.00   0.00   0.00  40.66
-------------------------------------------------------------------------

Segment Leq : 49.45 dBA

Total Leq All Segments: 49.45 dBA


Road data, segment # 1: Cedar Creek (day/night)
-----------------------------------------------
Car traffic volume  : 10238/1138  veh/TimePeriod
Medium truck volume :   389/43    veh/TimePeriod
Heavy truck volume  :  2333/259   veh/TimePeriod
Posted speed limit  :    80 km/h
Road gradient       :    0 %
Road pavement       :    1 (Typical asphalt or concrete)

Data for Segment # 1: Cedar Creek (day/night)
-----------------------------------------------
Angle1   Angle2          :   0.00 deg   90.00 deg
Wood depth               :      0       (No woods.)
No of house rows         :      0 / 0
Surface                  :      1       (Absorptive ground surface)
Receiver source distance  : 500.00 / 500.00 m
Receiver height          :   4.50 / 4.50   m
Topography               :      1       (Flat/gentle slope; no barrier)
Reference angle          :   0.00


Results segment # 1: Cedar Creek (day)
--------------------------------------

Source height = 2.06 m

ROAD (0.00 + 47.51 + 0.00) = 47.51 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
    0    90   0.55  75.45   0.00 -23.65  -4.28   0.00   0.00   0.00  47.51
-------------------------------------------------------------------------

Segment Leq : 47.51 dBA

Total Leq All Segments: 47.51 dBA


Results segment # 1: Cedar Creek (night)
----------------------------------------
```

Source height = 2.06 m

ROAD (0.00 + 40.98 + 0.00) = 40.98 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.55	68.91	0.00	-23.65	-4.28	0.00	0.00	0.00	40.98

Segment Leq : 40.98 dBA

Total Leq All Segments: 40.98 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 52.21
(NIGHT): 50.03

STAMSON 5.0 NORMAL REPORT Date: 14-06-2022 14:06:32
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: por05.te Time Period: Day/Night 16/8 hours
Description: POR05

Rail data, segment # 1: CPR (day/night)

Train ! Trains ! Speed !# loc !# Cars! Eng !Cont
Type ! !(km/h) !/Train!/Train! type !weld
---
1. ! 10.0/4.0 ! 80.0 ! 3.0 !100.0 !Diesel! Yes

Data for Segment # 1: CPR (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 235.00 / 235.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
No Whistle
Reference angle : 0.00

Results segment # 1: CPR (day)

LOCOMOTIVE (0.00 + 52.39 + 0.00) = 52.39 dBA
Angle1 Angle2 Alpha RefLeq D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 90 0.50 71.42 -17.86 -1.17 0.00 0.00 0.00 52.39

WHEEL (0.00 + 44.39 + 0.00) = 44.39 dBA
Angle1 Angle2 Alpha RefLeq D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 90 0.60 64.87 -19.12 -1.35 0.00 0.00 0.00 44.39

Segment Leq : 53.03 dBA

Total Leq All Segments: 53.03 dBA

Results segment # 1: CPR (night)

LOCOMOTIVE (0.00 + 51.42 + 0.00) = 51.42 dBA
Angle1 Angle2 Alpha RefLeq D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---

-90	90	0.50	70.45	-17.86	-1.17	0.00	0.00	0.00	51.42

WHEEL (0.00 + 43.42 + 0.00) = 43.42 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.60	63.90	-19.12	-1.35	0.00	0.00	0.00	43.42

Segment Leq : 52.06 dBA

Total Leq All Segments: 52.06 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 53.03
(NIGHT): 52.06